IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant(s): Peter M. Bonutti	Confirmation No.: 3567
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For: KNEE ARTHROPLASTY METHOD	Examiner: Mary C. Hoffman

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BRIEF ON APPEAL

This Brief on Appeal is made in Response to the final office action dated August 17, 2010.

Appellant hereby respectfully submits this brief in support of his appeal to the Board of Patent Appeals and Interferences of the final rejection of claims 1, 4-16, 18-28, 30-33, 35-38, 40-46, and 51-72, of the above-referenced application. Reconsideration of the Application, withdrawal of the rejections, and allowance of the claims are respectfully requested.

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I. Real Party in Interest

The real party in interest in this matter is Marctec, LLC, an Illinois corporation evidenced by assignment recorded by the USPTO on May 11, 2006 at Reel/Frame 017603/0207.

II. Related Appeals and Interferences

There are no related appeals or interferences.

III. Status of Claims

This is an appeal from the final rejection in the Office action mailed August 17, 2010, finally rejecting claims 1, 4-16, 18-28, 30-33, 35-38, 40-46, and 51-72 and withdrawing claims 63-67.

More particularly, the following claims were rejected under 35 U.S.C. §103(a), as being unpatentable over the cited references:

Claims 1, 4-16, 18-19, 24-25, 28-33, 35-38, 40-46, 51-52, 57-61 and 68-69 over Haines et al. (U.S. Patent No. 5,643,272, "Haines") in view of Waddell (U.S. Patent No. 6,174,314, "Waddell");

Claim 21 over Haines in view of Waddell, and further in view of Whitt (U.S. Patent No. 4,373,709);

Claims 22-23, 54-56, 62, and 70-72 over Haines in view of Waddell, and further in view of Wang (U.S. Patent No. 6,102,850);

Claims 26-27 over Haines in view of Waddell, and further in view of Gustilo (U.S. Patent No. 5,733,292); and

Claim 53 over Haines in view of Waddell, and further in view of Whitt (U.S. Patent No. 4,373,709).

Claims 2-3, 17, 29, 34, 39 and 47-50 were previously cancelled.

IV. Status of Amendments

Amendments submitted and received June 3, 2010, in a Response to a Non-Final Office Action mailed December 3, 2009, are understood by the Applicant to have been entered. No amendments have yet been filed in response to the Final Office Action mailed August 17, 2010, which is the subject of this Appeal.

V. Summary of the Claimed Subject Matter

Claims 1, 10, 16, 19, 21, 23, 25, 26, 30, 31, and 43, and withdrawn claims 63-67 are the independent claims pending in this appeal. The patentability of dependent claims 4-9, 11-15, 18, 20, 22, 24, 27-28, 32-33, 35-38, 40-42, 44-46, 51-62, and 68-72 is being argued separately.

With reference to FIGS. 8, 22, 29, and 51, the invention as claimed relates to displacing a patella in the knee portion of the leg from a normal position to an offset position with the articulating surface of the patella facing the femur. In this manner, the patella can be cut and realigned in situ, with minimal or no subluxation (dislocation of the joint). (subject application, ¶[0012]), and at least a portion of the articulating surface of a bone of the joint can be replaced.

Additional aspects of the claimed method include: the end portion of the femur may be cut while the patella is in this position; cutting and/or realignment can be done while the knee is in flexion, which is the natural position, rather than extension (¶[0012]); the patellar position facilitates an incision having a limited length (¶[0012]); by not flipping or everting the patella, the quadriceps/tendon complex is subject to less stress, decreasing the risks of tearing, damage, and strain (¶[0170]); and the skin is not excessively stretched (¶[0185]); alignment is more accurate for cuts (¶[0328]), and mounting of an implant (¶[0331]); the patella may be made thinner, to further avoid stretching of the skin during subsequent procedures, including cutting the tibia (¶[0479]); and the leg may be moved through a normal range of motion to detect potential interference, using an endoscope type device (¶[0559]). (See also ¶¶[0050], [0175], [0202], [0217], [0272], [0414], [0440], [0446], [0458], [0482], [0590], and [0726]).

More particularly, the independent claims follow, with references to the specification and drawings, for at least one embodiment of the disclosure, for each claim element. Bracketed reference numbers in bold refer to the page and paragraph number in the original application, followed by a slash, followed by relevant line number(s) within the paragraph. Drawing references are within parentheses, and include the figure number followed by a slash, followed by the reference number, and are also in bold.

1. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg **[0132/1](8/114)**;

displacing a patella in the knee portion of the leg from a normal position to an offset position with the articulating surface of the patella facing the femur **[0170/2](8/120)**;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg and cutting bone of the leg while the patella is maintained offset from a normal position and not everted **[0202/4](9/120,13/172)**; and

replacing at least a portion of the articulating surface of a bone of the joint **[0137/3](28/294)**.

10. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg **[0132/1](8/114)**;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur **[0170/2](8/120)**;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg **[0202/4](9/120,13/172)**; and

connecting a guide member to at least one of the upper or lower portions of the leg, the cutting guide operative to support and thereby guide the cutting tool, wherein the guide member is connected to one of the lower portion of the leg, the lower portion being a tibia, or the upper portion of the leg, the upper portion being a femur **[0177/1](9/134)**;

cutting articular cartilage of the femur or tibia while the patella is maintained in the offset position **[0202/4](9/120,13/172)**, and while no bone of the knee extends to pass outside the patient's body through said incision, until cut and removed from the joint **[0185/5]-[0186/13](9/114,120, 124, 214)**.

16. (Previously presented) A method of performing a joint arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg **[0132/1](8/114)**;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur **[0170/2](8/120)**;

positioning a guide assembly proximally to the patella, the guide assembly including a pair of substantially parallel arms and a slot having a guide surface configured for receiving a patella cutting tool **[0327/1](36/464)**;

cutting the inner side of the patella, using the guide assembly, in the knee portion of the leg, prior to resecting the femur or the tibia **[0331/1]**, while the articulating surface of the patella faces towards a posterior portion of the knee portion of the leg, and includes removing at least a portion of the articulating surface of the patella **[0328/7][0329/5](36/170)**.

19. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg **[0132/1](8/114)**;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur **[0170/2](8/120)**;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg **[0202/4](9/120,13/172)**;

cutting the articulating surface of the patella in the knee portion of the leg, wherein the articulating surface of the patella faces the femur and includes removing at least a portion of the articulating surface of the patella **[0328/7][0329/5](36/170)**;

cutting at least one of the articulating surface of the femur or tibia in preparation for an implant component to replace the cut articulating surface **[0202/4](9/120,13/172)**; and

wherein the articulating surface of the patella is cut prior to displacing the patella from the normal position to the offset position **[0477/4](36/170)**.

21. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg **[0132/1](8/114)**;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur **[0170/2](8/120)**;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg **[0202/4](9/120,13/172)**;

cutting at least one of the articulating surface of the femur or tibia in preparation for an implant component to replace the cut articulating surface while the patella is in an offset position with the articulating surface of the patella facing the femur **[0202/4](9/120,13/172)**; and

supporting the patient with the lower portion of the leg suspended from the upper portion of the leg, wherein the lower portion remains suspended from the upper portion while the incision is made in the knee portion of the leg and the patella is moved to the offset position with the articulating surface of the patella facing the femur **[0217/5](2/68)**.

23. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg **[0132/1](8/114)**;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur **[0170/2](8/120)**;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg, and cutting articulating surface of the femur or tibia in preparation for an implant operative to replace the cut articulating surface, while the patella is in the offset position **[0202/4](9/120,13/172)**;

moving a leading end of an endoscope through the incision to a posterior portion of the knee portion of the leg of the patient **[0170/5](33/352)**;

inspecting the posterior portion of the knee portion of the leg, including viewing the posterior portion of the knee portion through the endoscope **[0170/5](33/352)**; and moving the leg of the patient between a flexed condition and an extended condition, wherein the posterior portion of the leg is viewed, at least partially, during movement of the leg of the patient between the flexed and extended conditions **[0303/6](32-33/352)**.

25. (Previously presented) A method of performing a knee arthroplasty surgery on first and second portions of a leg of a patient, comprising:

making an incision in a knee portion of the leg having a length not more than 13 cm **[0160/6](9/114)**;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur **[0170/2](8/120)**;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg **[0202/4](9/120,13/172)**;

exposing the first portion of the leg through the incision and performing surgery on the first portion **[0202/4](9/120,13/172)**;

effecting relative movement between the upper and lower portions of the leg, thus exposing the second portion of the leg through the incision, thereby enabling cutting bone of the leg on the second portion through the incision while maintaining the patella in the offset position **[0238/4](24/86)**.

26. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg having a length not more than about twice the length of the patella **[0132/1](8/114)**;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur **[0170/2](8/120)**;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg **[0202/4](9/120,13/172)**;

providing an output signal which is a function of tension in a ligament extending between bones in the leg of the patient **[0379/8](41/596)**; and cutting bone of the femur or tibia while maintaining the patella in the offset position **[0202/4](9/120,13/172)**.

30. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg **[0132/1](8/114)**;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur **[0170/2](8/120)**;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg **[0202/4](9/120,13/172)**; and

wherein displacing the patella from the normal position to the offset position comprises moving the patella laterally relative to the knee portion of the leg **[0202/4](9/120,13/172)**; and

cutting articulating surface bone of the femoral or tibial portion of the leg while maintaining the patella in the offset position **[0202/4](9/120,13/172)**.

31. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg of the patient having a length not more than a distance between, about the proximal end of the tibia to about the epicondylar notch on the distal end portion of the femur **[0165/4](9/114)**;

displacing the patella from the normal position to an offset position with an articulating surface of the patella facing the femur **[0170/2](8/120)**;

cutting at least a portion of the articulating surface of the patella, the patella being maintained in the offset position **[0328/7][0329/5](36/170)**; and

cutting articulating bone surface of the femur or tibia in preparation for a replacement joint component **[0202/4](9/120,13/172)**.

43. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising the steps of:

making an incision in a knee portion of the leg having a length not more than about twice the length of the patella **[0132/1](8/114)**;

cutting an articulating surface of the patella in the knee portion of the leg, the patella remaining in a normal position relative to the knee portion **[0328/7][0329/5](36/170)**;

moving a patella implant through the incision **[0329/6](85/1220)**;

connecting the patella implant to the cut articulating surface of the patella **[0329/6](85/1220)**;

displacing the patella from the normal position to an offset position with the cut articulating surface of the patella facing the femur **[0329/6](85/1220)**;

cutting an end portion of at least one of a femoral or tibial portion of the leg **[0331/5](13/172)**;

moving at least one implant through the incision while the patella is offset from the normal position with the cut articulating surface of the patella facing the femur **[0202/4](9/120,13/172)**; and

connecting the at least one implant with the cut end portion of at least one of the femoral or tibial portions of the leg **[0331/7](29/290,286,294)**.

63. (Withdrawn) A method of performing arthroplasty on a leg of a patient, comprising:

making an incision in a knee portion of the leg having a length not more than a distance between, about the proximal end of the tibia to about the epicondylar notch on the distal end portion of the femur **[0165/4](9/114)**;

cutting the patella while the patella is offset with an articular surface of the patella facing the femur, the patella thereby not everted **[0328/7][0329/5](36/170)**, forming an elongated channel or projection on the patella **[0653/4](85/1220,1222)**, the patella cut without first resecting the femur or tibia **[0331/1](85/1220,1222)**; and

sliding a patellar implant, having a channel or projection mateably engageable with the channel or projection formed in the patella, onto the patella, from a medial or lateral approach to the patella, thereby affixing said implant onto the patella **[0653/4](85/1220,1222)**;

whereby the patella may be cut, and the implant engaged, without a requirement of substantial subluxation of the patella **[0653/8](85/1220,1222)**.

64. (Withdrawn) A method of performing arthroplasty on a leg of a patient, comprising:

making an incision in a knee portion of the leg **[0132/1](8/114)**;

passing a guide wire through the incision **[0637/4](98/1108)**;

attaching the guide wire to the patella **[0637/4](98/1108)**;

passing a cutting tool along the guide wire, to contact and cut the patella while the patella is offset with an articular surface of the patella facing the femur, the patella thereby not everted, preparing the patella for a patellar implant **[0637/1][0328/7][0329/5](71/1124)(36/170)**; and

affixing a patellar implant to the patella, upon the cut portion of the patella, from a medial, lateral, or retrograde approach to the patella **[0637/1][0638/2][0629/10](71/1124)(54/802)**;

whereby the patella may be cut, and the implant engaged, without a requirement of substantial subluxation of the patella **[0637/1][0328/7][0329/5](71/1124)(36/170)**.

65. (Withdrawn) A method of performing surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg having a length not more than a distance between, about the proximal end of the tibia to about the epicondylar notch on the distal end portion of the femur **[0165/4](9/114)**;

disconnecting one of a medial or lateral collateral ligament **[0638/5](75/1150)**;

hinging open the joint space, thereby offsetting the patella with an articular surface of the patella facing the femur, and moving the patella medially or laterally without substantially stretching the patellar ligaments **[0640/11](75/1150)**;

performing a surgical procedure within the joint space **[0641/1](77/1152)**; and

reconnecting the disconnected collateral ligament **[0639/2](77/1166)**;

whereby when the patella is moved, an accessible area within the joint space is increased, thereby facilitating the surgery, without a requirement of substantial subluxation of the patella **[0640/11](75/1150)**.

66. (Withdrawn) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg having a length not more than 13 cm **[0160/6](9/114)**;

cutting the patella while the patella is offset with an articular surface of the patella facing the femur, the patella thereby not everted **[0328/7][0329/5](36/170)**;

attaching at least one transducer operative to indicate a force transmitted between the patella and the femur **[0536/2](58/930,932)**; and

attaching at least one inflatable bladder to the patella, operative to change a force transmitted between the patella and the femur **[0446/2](51/720)**;

whereby one or both of said transducer or bladder may be left inside the body after surgery **[0444/8][0392/3](51/720)(41/598)**, and

whereby patellar tracking may be corrected by inflating the at least one inflatable bladder, based on a force indicated by said at least one transducer **[0538/1](58/930,932)**.

67. (Withdrawn) A method of performing knee arthroplasty in a patient, comprising:

making an incision adjacent to a side surface of the patella of the knee, extending between, and having a length no longer than a distance between, about the proximal end of the tibia to about the epicondylar notch on the distal end portion of the femur **[0165/4](9/114)**;

positioning a guide, comprising two parallel arms and a saw guiding surface, in contact with the patella, by inserting the arms through the incision, one arm positioned under a superior aspect of the patella, and another arm under an inferior aspect of the patella, thus aligning the saw guiding surface with a portion of the patella to be cut **[0328/3](36/464)**;

cutting a surface of the patella while the patella is offset with an articular surface of the patella facing the femur, using the saw guiding surface **[0329/3](36/464)**,

affixing a patellar implant to the patella, upon the cut portion of the patella, from a medial, lateral, or retrograde approach to the patella **[0329/3][0637/1][0638/2][0629/10](71/1124)(54/802)(36/464)**;

whereby the patella may be cut, and the implant engaged, without a requirement of substantial subluxation of the patella **[0637/1][0328/7][0329/5](71/1124)(36/170)**.

VI. Grounds Of Rejection To Be Reviewed On Appeal

Rejections under 35 U.S.C. §103

Whether the following claims are unpatentable under 35 U.S.C. §103(a) over the cited references:

Claims 1, 4-16, 18-19, 24-25, 28-33, 35-38, 40-46, 51-52, 57-61 and 68-69 over Haines et al. (U.S. Patent No. 5,643,272, "Haines") in view of Waddell (U.S. Patent No. 6,174,314, "Waddell");

Claim 21 over Haines in view of Waddell, and further in view of Whitt (U.S. Patent No. 4,373,709);

Claims 22-23, 54-56, 62, and 70-72 over Haines in view of Waddell, and further in view of Wang (U.S. Patent No. 6,102,850);

Claims 26-27 over Haines in view of Waddell, and further in view of Gustilo (U.S. Patent No. 5,733,292); and

Claim 53 over Haines in view of Waddell, and further in view of Whitt (U.S. Patent No. 4,373,709).

VII. Argument

A. Rejections under 35 U.S.C. §103(a)

1. Applicable Law - 35 U.S.C. § 103(a)

35 U.S.C. § 103(a) imposes the requirement that a claimed invention, to be patentable, must be non-obvious over the prior art "at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." The starting point for discussions of obviousness is Graham v. John Deere Co., 383 U.S. 1 148 USPQ 459 (1966), which set forth the following factors for determining obviousness: (1) the scope and content of the prior art; (2) differences between the prior art and the claims at issue; (3) the level of ordinary skill in the pertinent art; and (4) secondary considerations such as commercial success, long felt but unresolved needs, and failure of others.

All evidence, including the secondary considerations, must be weighed before reaching a conclusion on obviousness under § 103. Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1561, 1 USPQ2d 1593, 1594 (Fed. Cir.), cert. denied, 481 U.S. 1052 (1986); Hodosh v. Block Drug, 786 F.2d 1136, 1143, 229 USPQ 182, 188 (Fed. Cir.), cert. denied, 479 U.S. 827 (1986). In addition, the prior art itself must suggest the desirability and, therefore, obviousness of a modification of a reference or the combination of references to achieve a claimed invention without looking to the patent or application under consideration. Hodosh, 786 F.2d at 1143 n.5, 229 USPQ at 187 n.5; In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

Knowledge is presumed of all references in the same field of invention as the applicant's. However, the test of whether it would have been obvious to select specific teachings and combine them as the applicant did must still be met by identification of some suggestion, teaching, or motivation (TSM test) in the prior art, arising from what the prior art would have taught one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988).

Although the Supreme Court recently rejected a rigid application of the "teaching, suggestion, motivation (TSM) test", the Court also recognized that a showing of "teaching, suggestion, motivation" to combine the prior art to meet the claimed subject matter could provide a helpful insight in determining whether the claimed subject matter is obvious. KSR Int'l Co. v. Teleflex Inc. 550 U.S. 398; 82 USPQ2d 1385 (2007). Therefore, it remains necessary to identify the reason(s) why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed in order to properly establish a *prima facie* case of obviousness.

2. Status of Arguments

The arguments presented in this Appeal Brief regarding 35 U.S.C. §103(a) are previously presented in part, and are new in part. Arguments of the Examiner were identical to those presented in a prior Office Action mailed December 3, 2009, except the following was added: "However, it is noted that a broad reading of the Haines reference will suggest to a person of ordinary skill in the art that the patella should not be everted, for example, the cutting guides are constructed to be used from a lateral or medial approach to avoid interference with the patella." (P6).

3. Arguments

i. Whether claims 1, 4-16, 18-19, 24-25, 28-33, 35-38, 40-46, 51-52, 57-61 and 68-69 are unpatentable under 35 U.S.C. §103(a) over Haines et al. (U.S. Patent No. 5,643,272, "Haines") in view of Waddell (U.S. Patent No. 6,174,314, "Waddell").

The following discussion refers to steps taken ***while the patella is maintained in a non-everted position***. In relevant portion, the independent claims of the instant application state:

claim 1, "cutting bone of the leg while the patella is maintained offset from a normal position and not everted.";

claim 5, "moving at least one implant through the incision while the patella is offset from the normal position with the inner side of the patella facing inward";

claim 9, "moving at least one femoral implant through the incision while the patella is offset from the normal position with the articulating surface of the patella facing the femur";

claim 10, "displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur" and "cutting articular cartilage of the femur or tibia while the patella is maintained in the offset position";

claim 12, "moving at least one tibial implant through the incision while the patella is offset from the normal position with the articulating surface of the patella facing the femur";

claim 14, "moving at least one femoral implant through the incision while the patella is offset from the normal position with the articulating surface of the patella facing the femur";

claim 15, "cutting the articulating surface of the patella in the knee portion of the leg, wherein the articulating surface of the patella faces towards a posterior portion of the knee portion of the leg ";

claim 16, "cutting the inner side of the patella, using the guide assembly, in the knee portion of the leg, prior to resecting the femur or the tibia, while the articulating surface of the patella faces towards a posterior portion of the knee portion of the leg";

claim 19, "cutting the articulating surface of the patella in the knee portion of the leg, wherein the articulating surface of the patella faces the femur and includes removing at least a portion of the articulating surface of the patella";

claim 19, “the articulating surface of the patella is cut prior to displacing the patella from the normal position to the offset position”;

claim 20, “moving at least one patella implant through the incision prior to displacing the patella from the normal position to the offset position”;

claim 20, “connecting the at least one patella implant to the cut articulating surface of the patella prior to displacing the patella from the normal position to the offset position”;

claim 21, “cutting at least one of the articulating surface of the femur or tibia in preparation for an implant component to replace the cut articulating surface while the patella is in an offset position with the articulating surface of the patella facing the femur”;

claim 23 “displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur” and “cutting articulating surface of the femur or tibia in preparation for an implant operative to replace the cut articulating surface, while the patella is in the offset position”;

claim 25, “displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur” and “effecting relative movement between the upper and lower portions of the leg, thus exposing the second portion of the leg through the incision, thereby enabling cutting bone of the leg on the second portion through the incision while maintaining the patella in the offset position”;

claim 26, “displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur” and “cutting bone of the femur or tibia while maintaining the patella in the offset position”;

claim 30, “displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur” and “cutting articulating surface bone of the femoral or tibial portion of the leg while maintaining the patella in the offset position”;

claim 31, “displacing the patella from the normal position to an offset position with an articulating surface of the patella facing the femur” and “cutting at least a portion of the articulating surface of the patella, the patella being maintained in the offset position”;

claim 33, “at least one patella implant is connected to the patella prior to displacing the patella from the normal position to the offset position”;

claim 36, “moving at least one implant through the incision while the patella is offset from the normal position with the articulating surface of the patella facing the femur”;

claim 38, “moving at least one femoral implant through the incision while the patella is offset from the normal position with the articulating surface of the patella facing the femur”;

claim 40, “moving at least one tibial implant through the incision while the patella is offset from the normal position with the articulating surface of the patella facing the femur”;

claim 41, “the articulating surface of the patella is cut prior to displacing the patella from the normal position to the offset position”;

claim 43, “cutting an articulating surface of the patella in the knee portion of the leg, the patella remaining in a normal position relative to the knee portion”;

claim 43, “displacing the patella from the normal position to an offset position with the cut articulating surface of the patella facing the femur” and “moving at least one implant through the incision while the patella is offset from the normal position with the cut articulating surface of the patella facing the femur”;

claim 45, “the patella implant is connected to the cut articulating surface of the patella after moving the patella into the normal position from the offset position”;

claim 46, “the patella implant is connected to the cut articulating surface of the patella prior to displacing the patella from the normal position to the offset position”;

withdrawn claim 63, “cutting the patella while the patella is offset with an articular surface of the patella facing the femur, the patella thereby not everted”;

withdrawn claim 63, “the patella may be cut, and the implant engaged, without a requirement of substantial subluxation of the patella”;

withdrawn claim 64, “cut the patella while the patella is offset with an articular surface of the patella facing the femur, the patella thereby not everted”;

withdrawn claim 64, “the patella may be cut, and the implant engaged, without a requirement of substantial subluxation of the patella”;

withdrawn claim 65, “hinging open the joint space, thereby offsetting the patella with an articular surface of the patella facing the femur, and moving the patella medially or laterally without substantially stretching the patellar ligaments”;

withdrawn claim 65, “the patella is moved, an accessible area within the joint space is increased, thereby facilitating the surgery, without a requirement of substantial subluxation of the patella”;

withdrawn claim 66, “cutting the patella while the patella is offset with an articular surface of the patella facing the femur, the patella thereby not everted”;

withdrawn claim 67, “cutting a surface of the patella while the patella is offset with an articular surface of the patella facing the femur”; and

withdrawn claim 67, “the patella may be cut, and the implant engaged, without a requirement of substantial subluxation of the patella”.

The rejection admits that Haines does not explicitly state whether the patella is everted, and suggests Waddell implies non-eversion, but does not provide any support for a combination of the references, at least, suggesting the foregoing acts ***with a non-everted patella***. Alternatively stated, even assuming *arguendo* that Waddell suggests non-eversion is advantageous, there remains no suggestion or teaching of the foregoing elements which include and require a non-everted patella, and further, no suggestion or teaching as to how such acts might be carried out. Accordingly, the rejection does not meet the requisite burden of presenting a *prima facie* case for obviousness.

More particularly, the rejection states that a broad reading of Haines suggests the patella should not be everted, as the cutting guides are constructed to be used from a lateral or medial approach to avoid interference with the patella. Applicant respectfully disagrees with this broad reading of the reference. At the time of Haines, it was the normal practice to evert the patella in order to fully displace it and expose the femur and tibia. The mere fact that Haines uses a lateral or medial approach is merely consistent with the prior art method of making a medial parapatellar incision, for example to reduce damage to the quadriceps. There is no discussion or suggestion in Haines that this approach is taken for the purpose of avoiding everting the patella ***while carrying out the acts*** recited in the claims, as outlined above.

Other than the assertion noted above with respect to a lateral or medial approach, with respect to Haines, the rejection provides only a generalized reference to Figure 11 in support of a rejecting ***every*** claim element. As noted in a previous response, the lack of adequate supporting citations and references, presented at the same time as the rejection, in consideration of an admittedly broad reading of the reference, has significantly hampered prosecution of the application, and has prejudiced the Applicant.

In fact, Haines is silent as to a position of the patella. With respect to cited Figure 11, Haines merely states "FIG. 11 is a perspective view of another alternate embodiment of a partial cutting guide for use in the present invention when the patellar tendon, patella, or quad tendon interferes with placement of the cutting guide about the tibia." (C5L24-27), and "FIG. 11 shows an embodiment of the cutting guide for use when the patellar tendon, the patella, or the quad tendon interferes with the placement of the other cutting guides of the present invention." (C10L21-24). There is no suggestion or teaching that such interference is in association with an everted or non-everted patella, and could certainly be present with an everted patella.

While Fig. 11 illustrates a patella, the position of the patella is not described in the text. Accordingly, a position of the patella in the drawing may reasonably be construed to be moved away to better illustrate the alternative guide, and no other inference is suggested.

The combination of Haines with Waddell does not teach the previously recited elements of the instant application. Waddell is direct to "resurfacing a patella in situ…to achieve accurate placement and functioning of the patellar prosthesis with respect to the other components of the total knee system in total knee arthroplasty. ...The resection guide is mounted on a trial component such as a femoral component using the adaptor base." (Abstract). "First, the femoral trial, tibial trial, and any other final components are installed and the knee is held in the desired position. …Next, a resection guide is mounted on either the femoral or tibial component and adjusted for proper alignment in the anterior, posterior and coronal planes, correctly positioning the guide for the individual patella and evaluating the proper depth and angle of resection." (C3L19-22).

Thus, Waddell discloses cutting the patella in situ for accuracy with respect to trial components already installed, and does not suggest or teach the acts associated with a non-everted patella outlined as claimed and as summarized above. There is no suggestion or teaching in Waddell not to evert the patella for any reason, and merely states "In the next step, the posterior of the patella is resurfaced using the appropriate cutting style depending upon the configuration of the total knee system and the individual patella. Next, the patella component is applied." (C29-32).

This cursory recitation of subsequent steps does not include any suggestion or teaching of ***maintaining*** a non-everted patella. As the clear objective in Waddell is to make an accurate cut reflecting placement of trial components, the objective is completely satisfied after the patellar surface is cut. Accordingly, it would be logical to, thereafter, carry out resurfacing and installation of a patellar component in accordance with the prior art, which was to evert the patella. If Waddell maintained a non-everted patella for these subsequent steps, one would have expected at least some teaching or suggestion for doing so, as this would be contrary to prior art practice. As Waddell, like Haines, is silent in this key regard, Waddell cannot be deemed to teach or suggest ***maintaining*** the patella in a non-everted state ***while carrying out*** the attendant acts as outlined above, including for example "cutting articular cartilage of the femur or tibia while the patella is maintained in the offset position", "moving at least one implant through the incision", "cutting the articulating surface of the patella prior to displacing the patella from the normal position", "the patella may be cut, and the implant engaged, without a requirement of substantial subluxation of the patella", and "hinging open the joint space, thereby offsetting the patella with an articular surface of the patella facing the femur".

Whitt, Wang, and Gustillo, are cited for a suspended and positioned lower leg, endoscope and robotics, and transducers, respectively, and do not cure the deficiencies of Haines and Waddell as detailed above.

ii. Whether claim 21 is unpatentable under 35 U.S.C. §103(a) over Haines in view of Waddell, and further in view of Whitt (U.S. Patent No. 4,373,709).

This rejection is addressed together with the rejection detailed in section (i) above.

iii. Whether claims 22-23, 54-56, 62, and 70-72 are unpatentable under 35 U.S.C. §103(a) over Haines in view of Waddell, and further in view of Wang (U.S. Patent No. 6,102,850).

This rejection is addressed together with the rejection detailed in section (i) above.

iv. Whether claims 26-27 are unpatentable under 35 U.S.C. §103(a) over Haines in view of Waddell, and further in view of Gustilo (U.S. Patent No. 5,733,292).

This rejection is addressed together with the rejection detailed in section (i) above.

v. Whether claim 53 over Haines in view of Waddell, and further in view of Whitt (U.S. Patent No. 4,373,709).

This rejection is addressed together with the rejection detailed in section (i) above.

Summary

Accordingly, Applicant respectfully submits that claims 1, 10, 16, 19, 21, 23, 25, 26, 30, 31, 43, and 63-67 are patentable over a combination of Haines, Waddell, Whitt, Wang, and Gustillo. As claims 4-9, 22, 24, 28, and 68-72 depend from claim 1; 11-15 from claim 10; 18 from 15; 20 from 19; 27 from 26; 51-62 from 30; 32-33, 35-38, and 40-42 from 31; and 44-46 from 43, these dependent claims necessarily include all the elements of their base claim. Accordingly, Applicant respectfully submits that the dependent claims are allowable over the cited references for at least the same reasons.

In light of the foregoing, Applicant respectfully submits the foregoing rejections under §103 should be reversed.

CONCLUSION

Applicant respectfully prays that the Board reverses the Examiner's rejections of claims 1, 4-16, 18-19, 21-33, 35-38, 40-46, 51-62, and 68-72. No basis of rejection appears to have been provided for dependent claim 20. As claim 20 depends from claim 19, Applicant respectfully submits claim 20 should be allowable, as well.

In addition, in light of the reversal, the Board is requested to order a Notice of Allowance be issued.

A fee of $1110 for a three month extension is believed to be due, and is submitted herewith. However, please charge any required fee (or credit any overpayments of fees) to the Deposit Account of the undersigned, Account No. 500601 (Docket No. 780-A03-012B).

Respectfully submitted,

/ Paul D. Bianco /

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VIII. Claims Appendix

The following claim listing reflects the claims as Applicant understands to be currently entered.

1. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg;

displacing a patella in the knee portion of the leg from a normal position to an offset position with the articulating surface of the patella facing the femur;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg and cutting bone of the leg while the patella is maintained offset from a normal position and not everted; and

replacing at least a portion of the articulating surface of a bone of the joint.

2-3. (Canceled)

4. (Original) The method of claim 1, further comprising cutting an end surface of at least one of the upper or lower portions of the leg.

5. (Previously presented) The method of claim 4 comprising:

moving at least one implant through the incision while the patella is offset from the normal position with the inner side of the patella facing inward; and

connecting the at least one implant with the cut end portion of at least one of the upper or lower portions of the leg.

6. (Previously presented) The method of claim 1, further comprising connecting a guide member, operative to support and thereby guide the cutting tool, to at least one of the upper or lower portions of the leg.

7. (Original) The method of claim 6, wherein the guide member is connected to the upper portion of the leg, the upper portion being a femur, the guide member including a first end portion in engagement with a lateral condyle of the femur, the first end portion offset medially from a lateral edge portion of the lateral condyle, and a second end portion in engagement with a medial condyle of the femur, the second end portion offset laterally from a medial edge portion of the medial condyle.

8. (Original) The method of claim 7, further comprising cutting the lateral and medial condyle of the femur.

9. (Previously presented) The method of claim 8, further comprising:

moving at least one femoral implant through the incision while the patella is offset from the normal position with the articulating surface of the patella facing the femur; and

connecting the at least one femoral implant with the cut lateral and medial condyle of the femur.

10. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg; and

connecting a guide member to at least one of the upper or lower portions of the leg, the cutting guide operative to support and thereby guide the cutting tool, wherein the guide member is connected to one of the lower portion of the leg, the lower portion being a tibia, or the upper portion of the leg, the upper portion being a femur;

cutting articular cartilage of the femur or tibia while the patella is maintained in the offset position, and while no bone of the knee extends to pass outside the patient's body through said incision, until cut and removed from the joint.

11. (Original) The method of claim 10, further comprising cutting an end surface of the tibia.

12. (Previously presented) The method of claim 11, further comprising:

moving at least one tibial implant through the incision while the patella is offset from the normal position with the articulating surface of the patella facing the femur; and

connecting the at least one tibial implant with the cut end portion of the tibia.

13. (Original) The method of claim 1, further comprising:

moving a guide member into the incision, the guide member including opposite ends spaced apart by a distance which is less than a distance between a lateral epicondyle and a medial epicondyle on a femur;

positioning the guide member on the femur in the leg of the patient with the opposite ends of the guide member aligned with an axis through the lateral and medial epicondyles;

positioning the cutting tool on the guide member; and

moving the cutting tool along a guide surface on the guide member to cut the lateral and medial epicondyles on the femur.

14. (Previously presented) The method of claim 13, further comprising:

moving at least one femoral implant through the incision while the patella is offset from the normal position with the articulating surface of the patella facing the femur; and

connecting the at least one femoral implant with the cut lateral and medial epicondyles of the femur.

15. (Previously presented) The method of claim 13, further comprising:

cutting the articulating surface of the patella in the knee portion of the leg, wherein the articulating surface of the patella faces towards a posterior portion of the knee portion of the leg and includes removing at least a portion of the articulating surface of the patella.

16. (Previously presented) A method of performing a joint arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur;

positioning a guide assembly proximally to the patella, the guide assembly including a pair of substantially parallel arms and a slot having a guide surface configured for receiving a patella cutting tool;

cutting the inner side of the patella, using the guide assembly, in the knee portion of the leg, prior to resecting the femur or the tibia, while the articulating surface of the patella faces towards a posterior portion of the knee portion of the leg, and includes removing at least a portion of the articulating surface of the patella.

17. (Canceled)

18. (Previously presented) The method of claim 15, further comprising:

moving at least one patella implant through the incision; and

connecting the at least one patella implant to the cut articulating surface of the patella.

19. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg;

cutting the articulating surface of the patella in the knee portion of the leg, wherein the articulating surface of the patella faces the femur and includes removing at least a portion of the articulating surface of the patella;

cutting at least one of the articulating surface of the femur or tibia in preparation for an implant component to replace the cut articulating surface; and wherein the articulating surface of the patella is cut prior to displacing the patella from the normal position to the offset position.

20. (Previously presented) The method of claim 19, further comprising:

moving at least one patella implant through the incision prior to displacing the patella from the normal position to the offset position; and

connecting the at least one patella implant to the cut articulating surface of the patella prior to displacing the patella from the normal position to the offset position.

21. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg;

cutting at least one of the articulating surface of the femur or tibia in preparation for an implant component to replace the cut articulating surface while the patella is in an offset position with the articulating surface of the patella facing the femur; and

supporting the patient with the lower portion of the leg suspended from the upper portion of the leg, wherein the lower portion remains suspended from the upper portion while the incision is made in the knee portion of the leg and the patella is moved to the offset position with the articulating surface of the patella facing the femur.

22. (Original) The method of claim 1, further comprising;

moving a leading end of an endoscope through the incision to a posterior portion of the knee portion of the leg of the patient; and

inspecting the posterior portion of the knee portion of the leg, including viewing the posterior portion of the knee portion through the endoscope.

23. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg, and cutting articulating surface of the femur or tibia in preparation for an implant operative to replace the cut articulating surface, while the patella is in the offset position;

moving a leading end of an endoscope through the incision to a posterior portion of the knee portion of the leg of the patient;

inspecting the posterior portion of the knee portion of the leg, including viewing the posterior portion of the knee portion through the endoscope; and

moving the leg of the patient between a flexed condition and an extended condition, wherein the posterior portion of the leg is viewed, at least partially, during movement of the leg of the patient between the flexed and extended conditions.

24. (Previously presented) The method of claim 1, further comprising:

initiating a cut with the cutting tool along an end portion of at least one of the upper or lower portions of the leg to define a cutting surface; and

completing the cut while guiding the cutting tool along the cutting surface formed during making of the initial cut in an end portion of at least one of the upper or lower portions of the leg.

25. (Previously presented) A method of performing a knee arthroplasty surgery on first and second portions of a leg of a patient, comprising:

making an incision in a knee portion of the leg having a length not more than 13 cm;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg;

exposing the first portion of the leg through the incision and performing surgery on the first portion;

effecting relative movement between the upper and lower portions of the leg, thus exposing the second portion of the leg through the incision, thereby enabling cutting bone of the leg on the second portion through the incision while maintaining the patella in the offset position.

26. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg having a length not more than about twice the length of the patella;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg;

providing an output signal which is a function of tension in a ligament extending between bones in the leg of the patient; and

cutting bone of the femur or tibia while maintaining the patella in the offset position.

27. (Original) A method as set forth in claim 26, wherein providing the output signal comprises:

positioning a transducer between the ligament and a bone in the knee portion of the leg; and

providing an output signal which varies as a function of variations in force applied against the transducer during relative movement between the upper and lower portions of the leg.

28. (Original) The method of claim 1, wherein making the incision in the knee portion of the leg comprises making the incision adjacent to a medial edge portion of the patella.

29. (Canceled)

30. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg;

displacing a patella in the knee portion of the leg from a normal position to an offset position with an articulating surface of the patella facing the femur;

positioning a cutting tool proximal to at least one of an upper or a lower portion of the leg; and

wherein displacing the patella from the normal position to the offset position comprises moving the patella laterally relative to the knee portion of the leg; and

cutting articulating surface bone of the femoral or tibial portion of the leg while maintaining the patella in the offset position.

31. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg of the patient having a length not more than a distance between, about the proximal end of the tibia to about the epicondylar notch on the distal end portion of the femur;

displacing the patella from the normal position to an offset position with an articulating surface of the patella facing the femur;

cutting at least a portion of the articulating surface of the patella, the patella being maintained in the offset position; and

cutting articulating bone surface of the femur or tibia in preparation for a replacement joint component.

32. (Previously presented) The method of claim 31, further comprising:

moving at least one patella implant through the incision; and

connecting the at least one patella implant to the cut articulating surface of the patella.

33. (Original) The method of claim 32, wherein the at least one patella implant is connected to the patella prior to displacing the patella from the normal position to the offset position.

34. (Canceled)

35. (Previously presented) The method of claim 31, further comprising cutting an end surface of at least one of an upper and lower portions of the leg.

36. (Previously presented) The method of claim 35, further comprising:

moving at least one implant through the incision while the patella is offset from the normal position with the articulating surface of the patella facing the femur; and

connecting the at least one implant with the cut end portion of at least one of the upper and lower portions of the knee portion of the leg.

37. (Original) The method of claim 35, wherein the upper portion of the leg is a femur and lateral and medial condyles of the femur are cut.

38. (Previously presented) The method of claim 37, further comprising:

moving at least one femoral implant through the incision while the patella is offset from the normal position with the articulating surface of the patella facing the femur; and

connecting the at least one femoral implant with the cut lateral and medial condyles of the femur.

39. (Canceled)

40. (Previously presented) The method of claim 35, further comprising:

cutting an end portion of the tibia;

moving at least one tibial implant through the incision while the patella is offset from the normal position with the articulating surface of the patella facing the femur; and

connecting the at least one tibial implant with the cut end portion of the tibia.

41. (Previously presented) The method of claim 31, wherein the articulating surface of the patella is cut prior to displacing the patella from the normal position to the offset position.

42. (Original) The method of claim 31, wherein displacing the patella from the normal position to the offset position comprises moving the patella laterally relative to the knee portion of the leg.

43. (Previously presented) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising the steps of:

making an incision in a knee portion of the leg having a length not more than about twice the length of the patella;

cutting an articulating surface of the patella in the knee portion of the leg, the patella remaining in a normal position relative to the knee portion;

moving a patella implant through the incision;

connecting the patella implant to the cut articulating surface of the patella;

displacing the patella from the normal position to an offset position with the cut articulating surface of the patella facing the femur;

cutting an end portion of at least one of a femoral or tibial portion of the leg;

moving at least one implant through the incision while the patella is offset from the normal position with the cut articulating surface of the patella facing the femur; and

connecting the at least one implant with the cut end portion of at least one of the femoral or tibial portions of the leg.

44. (Previously presented) The method of claim 43, further comprising moving the patella into the normal position, wherein the articulating surface of the patella facing towards a posterior portion of the knee portion;

45. (Previously presented) The method of claim 44, wherein the patella implant is connected to the cut articulating surface of the patella after moving the patella into the normal position from the offset position.

46. (Previously presented) The method of claim 43, wherein the patella implant is connected to the cut articulating surface of the patella prior to displacing the patella from the normal position to the offset position.

47-50. (Canceled)

51. (Previously presented) The method of claim 30, further comprising the steps of:
forming an opening in a bone of the leg; and
positioning a portion of an intramedullary alignment device within said opening.

52. (Previously presented) The method of claim 30, further comprising the step of:
positioning an extramedullary alignment device proximate a bone of the leg.

53. (Previously presented) The method of claim 30, further comprising the step of:
supporting at least the lower portion of the leg on a supporting member including actuating and controlling means, operative to move the lower portion of the leg.

54. (Previously presented) The method of claim 30, further comprising the step of:
viewing at least a portion of the interior of the leg during surgery using viewing instrumentation selected from the group consisting of: endoscope, fluoroscope, magnetic resonance imaging unit (MRI).

55. (Previously presented) The method of claim 30, further comprising the step of:
performing at least part of the surgery using a robotic device.

56. (Previously presented) The method of claim 30, further comprising the step of:
generating and projecting an image on a bone of the leg using a computer, said image operative to guide cutting of the bone.

57. (Previously presented) The method of claim 30, further comprising the step of:

implanting an implant including a plurality of layers, at least one of said layers including at least one material selected from the group consisting of: fetal cells, bone cells, embryonal cells, stem cells.

58. (Previously presented) The method of claim 30, further comprising the steps of:

sequentially passing portions of an implant through said incision; and,

affixing at least two of said implant portions, one to the other, within the leg, in association with one side of the knee joint.

59. (Previously presented) The method of claim 30, further comprising the steps of:

replacing at least a portion of a single condyle with an implant; and,

replacing at least a portion of a trochlear groove with an implant.

60. (Previously presented) The method of claim 30, wherein the cutting tool is fabricated at a lower cost than a reusable cutting tool by being designed to be used in a single procedure and thereafter discarded.

61. (Previously presented) The method of claim 30, further comprising the step of:

positioning said cutting tool proximal to a side surface of the distal end of the femur to guide cutting the bone of the leg.

62. (Previously presented) The method of claim 30, further comprising the steps of:

making a second incision in a knee portion of the leg;

inserting at least one item through said second incision selected from the group consisting of: visualization instrument, inflatable balloon, part of a multi part implant, and surgical instrumentation.

63. (Withdrawn) A method of performing arthroplasty on a leg of a patient, comprising:

making an incision in a knee portion of the leg having a length not more than a distance between, about the proximal end of the tibia to about the epicondylar notch on the distal end portion of the femur;

cutting the patella while the patella is offset with an articular surface of the patella facing the femur, the patella thereby not everted, forming an elongated channel or projection on the patella, the patella cut without first resecting the femur or tibia; and

sliding a patellar implant, having a channel or projection mateably engageable with the channel or projection formed in the patella, onto the patella, from a medial or lateral approach to the patella, thereby affixing said implant onto the patella;

whereby the patella may be cut, and the implant engaged, without a requirement of substantial subluxation of the patella.

64. (Withdrawn) A method of performing arthroplasty on a leg of a patient, comprising:

making an incision in a knee portion of the leg;

passing a guide wire through the incision;

attaching the guide wire to the patella;

passing a cutting tool along the guide wire, to contact and cut the patella while the patella is offset with an articular surface of the patella facing the femur, the patella thereby not everted, preparing the patella for a patellar implant; ~~and~~

affixing a patellar implant to the patella, upon the cut portion of the patella, from a medial, lateral, or retrograde approach to the patella;

whereby the patella may be cut, and the implant engaged, without a requirement of substantial subluxation of the patella.

65. (Withdrawn) A method of performing surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg having a length not more than a distance between, about the proximal end of the tibia to about the epicondylar notch on the distal end portion of the femur;

disconnecting one of a medial or lateral collateral ligament;

hinging open the joint space, thereby offsetting the patella with an articular surface of the patella facing the femur, and moving the patella medially or laterally without substantially stretching the patellar ligaments;

performing a surgical procedure within the joint space; and

reconnecting the disconnected collateral ligament;

whereby when the patella is moved, an accessible area within the joint space is increased, thereby facilitating the surgery, without a requirement of substantial subluxation of the patella.

66. (Withdrawn) A method of performing a knee arthroplasty surgery on a leg of a patient, comprising:

making an incision in a knee portion of the leg having a length not more than 13 cm;

cutting the patella while the patella is offset with an articular surface of the patella facing the femur, the patella thereby not everted;

attaching at least one transducer operative to indicate a force transmitted between the patella and the femur; and

attaching at least one inflatable bladder to the patella, operative to change a force transmitted between the patella and the femur;

whereby one or both of said transducer or bladder may be left inside the body after surgery, and

whereby patellar tracking may be corrected by inflating the at least one inflatable bladder, based on a force indicated by said at least one transducer.

67. (Withdrawn) A method of performing knee arthroplasty in a patient, comprising:

making an incision adjacent to a side surface of the patella of the knee, extending between, and having a length no longer than a distance between, about the proximal end of the tibia to about the epicondylar notch on the distal end portion of the femur;

positioning a guide, comprising two parallel arms and a saw guiding surface, in contact with the patella, by inserting the arms through the incision, one arm positioned under a superior aspect of the patella, and another arm under an inferior aspect of the patella, thus aligning the saw guiding surface with a portion of the patella to be cut;

cutting a surface of the patella while the patella is offset with an articular surface of the patella facing the femur, using the saw guiding surface,

affixing a patellar implant to the patella, upon the cut portion of the patella, from a medial, lateral, or retrograde approach to the patella;

whereby the patella may be cut, and the implant engaged, without a requirement of substantial subluxation of the patella.

68. (Previously presented) The method of claim 1, wherein cutting bone of the leg corrects an alignment of the leg.

69. (Previously presented) The method of claim 68, wherein a cutting guide operative to support and thereby guide the cutting tool is used to correct an alignment of the leg.

70. (Previously presented) The method of claim 1, wherein a computer is used to guide the cutting tool.

71. (Previously presented) The method of claim 1, wherein the cutting tool is connected to a haptic or robotic arm.

72. (Previously presented) The method of claim 1, wherein an alignment guide is used to guide the cutting tool, the alignment guide custom fabricated based upon preoperative imaging.

IX. Evidence Appendix

None.

X. Related Proceedings Appendix

None.